

In section 3 of the Office Action dated August 13, 2002, the Examiner provided a response to Applicant's remarks of 13 MAY 2002. With regard to Applicants remarks, the Examiner states, "the Examiner disagrees..." Applicant's remarks of 13 MAY 2002 were directed toward the reference that was applied at that time. However, the outstanding Office Action dated August 13, 2002, response introduces a newly cited reference, namely U.S. Patent No. 5,742,792 and suggests that this newly cited reference describes certain aspects of the claims of the present application. Applicant will now address the newly cited reference, for the first time, below.

The Office Action dated August 13, 2002, is hereinafter referred to as "the Office Action."

In section 4 of the Office Action, claims 1-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,544,347 to Yanai et al. (hereinafter "the '347 patent") in view of U.S. Patent No. 5,742,792 to Yanai et al. (hereinafter "the '792 patent"). At many points in the Office Action, the Examiner referred to "Yanai" without further indicating which of the two patents the Examiner was addressing. Applicants interpreted the references to "Yanai" as being references to the '347 patent. Nevertheless, Applicant respectfully traverses this rejection on the grounds that the '347 and '792 patents, whether considered alone or in combination, do not describe or suggest all of the elements of the claimed invention.

Claim 1 provides a method for enabling improved access to data stored in a log of a computer memory system. The method includes, inter alia, the following: a) responding to a process request for access to a log, by determining a parameter indicative of demand for access to one of the copies of the log; and b) assigning the process to another of the copies of the log if the parameter has reached a threshold value. An exemplary employment of the method is described in the Specification at page 8, line 17 through page 9, line 23, with reference to Figs. 1 and 2. In particular at page 9, lines 6-19, it states:

[L]ogging system 122 maintains a count of active processes reading the log (step 200). If the count is below a threshold count, logging system 122 assigns a preference for the primary copy of the log to new processes requesting data from the log (step 202).

If the threshold count is reached, logging system 122 distributes preference assignments between the primary copy of the log and the secondary copy of the log, in respect of new processes requesting data from the log (step 204). It is preferred that the preference assignments be alternated as between the log copies so as to balance the work of the respective logs and reduce possible delay times.

The '347 patent relates to a system and method for providing and **maintaining a copy or mirror** of a data storage disk on a secondary storage system, remote from a primary storage system (Abstract and col. 1, lines 27-31). The system provides "copying of data from a primary data storage system to a physically remote secondary data storage system" (col. 6, lines 16-18).

In the Office Action, the Examiner correctly noted that Yanai (i.e., the '347 patent) does not explicitly indicate determining a parameter indicative of demand for access to one of said copies of said log, and assigning the process to another of said copies of the log if said parameter has reached a threshold value. The Examiner then suggested that the '792 patent describes this feature.

The '792 patent is a continuation-in-part of the '347 patent, and also relates to data mirroring (Abstract). The Examiner stated that the '792 patent implicitly indicates a series of steps at cols. 35-36, lines 62-10, which the Examiner reads as being descriptive of determining a parameter indicative of demand for access to one of said copies of said log, and assigning the process to another of the copies of the log if the parameter has reached a threshold value, as recited in claim 1. The passage at cols. 35-36 is part of a description of Fig. 14, which is a portion of a flowchart of a routine for migrating data (col. 6, lines 59 - 61 and col. 35, lines 8 - 15). A remote mirroring facility is provided with a migration mode "which is active during host processing of a primary (R1) volume and interactively copies updates from the primary (R1) volume to a secondary (R2) volume" (col. 5, lines 16 -20). In step 471, which is illustrated in Fig. 14, "the active volume is configured as a primary (R1) volume, and a new, initially invalid or empty volume is configured as the corresponding secondary (R2) volume to which data from the primary (R1) volume is to be migrated" (col. 35, lines 16 - 20). Applicant submits that the **migration of data**, as taught by the '792 patent, is not descriptive of **determining a parameter indicative of demand for access to**

one of said copies of said log, and **assigning the process to another of said copies** of the log if said parameter has reached a threshold value, as recited in claim 1.

Furthermore, in Fig. 14, step 479 evaluates a threshold. However, the decision made at step 479 relates to whether the process should (i) loop back to step 475 for another iteration, or (ii) branch to step 480 where host processing is suspended so that in step 481 **changed tracks of data can be copied from the primary volume to the secondary volume**. Applicant submits that such copying of data is not descriptive or suggestive of **assigning a process to another copy of a log** if a parameter has reached a threshold value, as recited in claim 1.

The mirroring described by the '347 patent and the migration described by the '792 patent, each relate to the **copying of data from a primary volume to a secondary volume**. These references are not descriptive or suggestive of the method for enabling **access to data stored in a log** of a computer, recited in claim 1. The systems of the '347 and '792 patents, which copy data from a primary volume to a secondary volume, do not appear, for example, to (i) respond to a process request to read data from the primary volume, and (ii) assign the process to read data from the secondary volume if a parameter reaches a threshold volume. Hence, the '347 and '792 patents neither describe nor suggest (a) responding to a process request for access to a log, by determining a parameter indicative of demand for access to one of the copies of the log; and (b) assigning the process to another of the copies of the log if the parameter has reached a threshold value, as recited in claim 1.

Applicant respectfully submits that the '347 and '792 patents, whether considered alone or in combination, do not describe or suggest all of the elements of claim 1. As such, claim 1 is patentable over these references.

Independent claims 7 and 13 each include recitals similar to that of claim 1. Accordingly, claims 7 and 13 are also patentable over the '347 and '792 patents.

Claims 4, 10 and 16 depend from claims 1, 7 and 13, respectively, and further provide for distributing new process assignments to both the primary log and the secondary log in an attempt

to balance work of the respective logs. The Examiner suggested that this feature is described by Yanai (i.e., the '347 patent) at col. 3, lines 20 - 32. The cited passage states:

At such time, the primary and/or secondary data storage system controller maintaining the list of primary data to be copied updates this list to reflect that the given primary data has been received by and/or copied to the secondary data storage system. The primary or secondary data storage system controllers and/or the primary and secondary data storage devices may also maintain additional lists in concluding which individual storage locations, such as tracks on a disk drive, are invalid on any given data storage device, which data storage locations are pending a format operation, which data storage device is ready to receive data, and whether or not any of the primary or secondary data storage devices are disabled for write operations.

Applicant submits that this passage relates to **maintaining lists for copying of data**, and it does not mention or appear to suggest a balancing operation. Consequently, the references do not describe or suggest **distributing new process assignments** to both the primary log and the secondary log in an attempt **to balance work of the respective logs**, as recited in claims 4, 10 and 16. Accordingly, claims 4, 10 and 16 are patentable over the references on their own merits as well as because of their dependence on independent claims 1, 7 and 13, respectively.

Claims 5, 11 and 17 depend from claims 1, 7 and 13, respectively, and further provide for alternating new processes assignments to the primary log and the secondary log in an attempt to balance work of the respective logs. The Examiner suggested that this feature is also described by Yanai (i.e., the '347 patent) at col. 3, lines 20 - 32. As explained in support of claims 4, 10 and 16, the cited passage relates to **maintaining lists for copying of data**, and it does not appear to mention or suggest a balancing operation. Consequently, the references do not describe or suggest **alternating new processes assignments** to the primary log and the secondary log in an attempt **to balance work of the respective logs**, as recited in claims 6, 12 and 18. Accordingly, claims 6, 12 and 18 are patentable over the references on their own merits as well as because of their dependence on independent claims 1, 7 and 13, respectively.

Claims 19, 20 and 21 depend from claims 1, 7 and 13, respectively, and further provide that the process request for access to the log comprises a request to read the log. The Examiner

suggested that this feature is described by Yanai (i.e., the '347 patent) at col. 3, lines 3 - 10. This passage states:

Accordingly, data may be transferred between the primary and secondary data storage system controllers synchronously, when a primary host computer requests writing of data to a primary data storage device, or asynchronously with the primary host computer requesting the writing of data to the primary data storage system, in which case the remote data copying or mirroring is completely independent of and transparent to the host computer system.

This passage specifically relates to requests for writing of data.

Note again that claim 19 depends from claim 1. Accordingly, claim 19, when read in full context with claim 1, provides for assigning a request to read a log to another copy of the log if a parameter has reached a threshold value. Applicant has not found any description or suggestion in the above-cited passage, or any passage of the '347 or '792 patents, that a request to read the primary volume is assigned to the secondary volume.

With particular regard to claims 19, 20 and 21, Applicant submits that the '347 patent's description at col. 3, lines 3 - 10, which relates to **requests for writing** is neither descriptive nor suggestive that a process request for access to a log comprises **a request to read the log**, as recited in claims 19, 20 and 21. Applicant submits that claims 19, 20 and 21 are patentable over the references on their own merits, as well as because of their dependence on claims 1, 7 and 13, respectively.

In view of the foregoing, Applicant submits that all claims presented in this application patentably distinguish over the prior art, and respectfully requests reconsideration and withdrawal of the section 103(a) rejection of claims 1 - 21. Applicant also requests favorable consideration and that this application be passed to allowance.

Respectfully submitted,

Date

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